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The Commissioner of Patents

Serial No. 10/532,138

REMARKS

Claims 1 to 21 and 30 to 32 are pending in the application.

Claims 3 to 5, 7 to 9, and 11 to 21 are withdrawn from consideration.

Election/Restrictions

Non-elected claims 24 to 29 have been cancelled without prejudice to applicant's right to pursue these in a continuation application.

Claims 3 to 5, 7 to 9, and 11 to 21 are withdrawn from consideration based on the election that applicant was required to make. However, these claims are withdrawn under the provision set forth at page 3 of the previous Office Action, indicating that applicant will be entitled to consideration of these claims if a generic claim (claim 1) is finally held to be allowable.

Claim Rejections – 35 USC § 112

In paragraph 2, it is indicated that claims 1 to 21 and 24 to 29 are rejected under 35 U.S.C. 112. As indicated above, claims 24 to 29 have been cancelled.

In response to paragraph 3, claim 1 has been amended to define "X" based on the description at page 10 of the specification and also the general description in claim 8.

In response to paragraph 4, for greater clarity, claim 1 has been amplified in the definition of "s" to expressly state that when s is 0, the result is a 5-membered pyrrolidine ring, and when s is 1, the result is a 6-membered piperidine ring. The notation employed in formula (O) is widely employed and accepted in patent documents. When s is 0, the (CH₂) will not be present, and the result will be a 5-membered ring. When s is 1, the (CH₂) radical will be present, and the result is a 6-membered ring. If s were defined as 2 (which it is not), the result would be a 7-membered ring. It is believed that the notation is clear especially with the amendment now made in claim 1, and that the language satisfies 35 U.S.C. 112.

The intention as evidently understood in the Office Action is to cover both 5-membered rings and 6-membered rings.

Reconsideration is requested.

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Concerning paragraph 5, the concerns raised are answered by the definition for "n" in claim 1. The value of n reflects the oxidation state. Reconsideration is requested.

In response to paragraph 6, claim 1 has been amended to clarify that "these materials" are the lignocellulosic materials already set forth in claim 1.

In response to the specific requirements made in paragraphs 7, 8, and 9 and the general requirement in paragraph 10, the claims have been reviewed, and the "preferably" and "such as" exemplification has been removed from the claims remaining in the application.

The amendment meets the specific objections in paragraphs 7, 8, and 9 and the general requirement in paragraph 10.

Claim Rejections – 35 USC § 103

In paragraphs 14, 15, and 16, claims 1 and 2 and claim 6 are indicated as being obvious having regard to Cunkle et al, U. S. Patent 6,416,627, which is acknowledged in the specification of the present application.

First, claim 1, the only independent claim now in the application, has been amended to restrict the class of compounds by the requirement either that Y_2 is hydrogen, or that Y_2 and Y_1 are both absent and Y is hydrogen.

Cunkle et al sets forth a shopping list of possible radicals which might be "randomly" put together, over columns 3 to 7 of Cunkle et al, to fit the extremely broad class of polymer identified at column 3, line 40, of Cunkle et al. With the shopping list of radicals and the "random" selections, the scope of the polymers identified is enormous. There is no direction in Cunkle et al to the class of compound of structural formula O as originally set forth and which more particularly includes two or more secondary amino or ammonium, or tertiary amino or ammonium, or quaternary ammonium functional groups.

The limitations now introduced result in that the extremely generic formula in Cunkle et al does not embrace the class of compounds of formula O now set forth in claim 1 wherein more especially Y_2 is confined to hydrogen or Y_2 and Y_1 are both absent while Y is hydrogen.

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Cunkle et al neither discloses in a generic fashion nor in any way suggests this class of compounds. Still less does Cunkle et al show the use of this class of compounds for reaction in an aqueous medium, in an alkaline peroxide bleaching medium or in an aqueous medium with a subsequent bleaching in an alkaline peroxide bleaching medium, with lignocellulosic materials to provide light and process stability.

The examples in the present specification demonstrate the improved results achieved with the yellowing inhibitors or hindered amine light stabilizers of the invention, possessing as they do two or more secondary and/or tertiary amino or ammonium, and/or quaternary ammonium groups.

Accordingly, even the extremely broad generic definition in Cunkle et al does not embrace the compounds now claimed for any purpose and thus cannot render obvious the particular class of compounds now specifically claimed for the specific purpose not shown by Cunkle et al.

Cunkle et al discloses an extremely broad class of polymers said to be stabilizers with high affinity to pulp. Although the descriptions are broad, indicating that an extremely broad class of polymeric stabilizers with pendant hindered nitroxide (Group A, Formula I), hydroxylamine or hydroxyl-ammonium salts (Group A, Formula IA) can be added at the various points in the paper-making process, there is no teaching of how the polymeric stabilizers might be successfully applied to pulp slurries containing dispersed and/or dissolved components/chemicals, and be retained by the pulps. The actual teachings are of applying the inhibitors to paper sheets from an aqueous solution or from 1:1 ethanol/dioxane solution. In addition, no polymeric stabilizers with pendant hindered amine (i.e., when E = H in Group A, Formula I, at col. 5 of Cunkle et al) are described. Cunkle et al does not teach creating fibre-reactivity for the stabilizers by grafting them onto an oligomeric amine compound bearing multiple cationic charges, nor the use of polymeric or oligomeric ammonium compounds as "Polymer P" (of Cunkle et al).

In the present invention, the class of compounds not embraced even generically by the description in Cunkle et al is reacted under defined conditions with lignocellulosic materials, and is retained by such materials.

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In the light of the foregoing comments and the amendments restricting the scope of claim 1, reconsideration is requested.

Allowable Subject Matter

The finding of allowability of claim 10 in paragraph 17 is gratefully acknowledged. This claim has, however, been amended to remove the exemplification "such as", taking account of the request in paragraph 10.

New Claims

New claim 30 is submitted directed to the embodiment in which Y_2 is hydrogen.

New claim 31 is submitted directed to the embodiment in which Y_2 and Y_1 are both absent and Y is hydrogen.

New claim 32 is submitted more particularly directed to the yellowing inhibitor set forth in claim 10 indicated as being allowable, but without the reference to the means by which it might be synthesized.

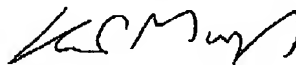
The foregoing is believed fully responsive to the Office Action.

The application is believed to be in condition for allowance, and early and favourable action would be appreciated.

Respectfully,

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